Toby: Sudheer Amgothu is an accomplished DevOps engineer with over a decade of experience renowned for his expertise in cloud technologies and infrastructure automation, and for being the author of his new book, mastering DevOps with Kubernetes and Cloud, A Practical Guide and S here is with us here just now.

How are you today?

Sudheer: I'm doing absolutely. All right. How about you?

Toby: I'm great. Thank you. Now, I've heard the words DevOps thrown around before, but for those of us outside of the tech bubble, can you just give us a picture as to what DevOps actually is and why it matters?

Sudheer: Basically, DevOps is a more than just automation or tooling.

It is a culture that brings development and operations, uh, team together with a shared goal to deliver software faster, more reliably, and, uh, with higher quality. It emphasizes collaboration and contributes feedback. And mindset of continuous, uh, improvement. And why does it matter for that? Because in today's digital first world, companies can't afford long release cycles or system downtime.

For example, at Pega, we reduced the release times by integrating continuous delivery practices into our pipeline. What one took weeks was streamlined into few hours, improving both product agility and customer satisfaction.

Toby: So what was it that first drew you to DevOps and cloud technologies?

Sudheer: So my journey started over a decade ago after yearning Masters in computer science.

Early in my career, I was a traditional system engineer, but I was always drawn to automation. I saw the inefficiencies in manual processes, especially around deployments. And monitoring. That's what pulled me into world of DevOps. Basically. At, at elevation, a mid-sized, uh, educational tech company. I led efforts to automate the entire infrastructure stack on AWS.

We introduced infrastructure as a code using Terraform and configuration management with Ansible. This is not only improved system reliability, but also empower the dev teams to shift faster with less friction.

Toby: And you've had a hand in everything from cloud cost optimization to database disaster recovery.

So what's the weirdest or the most unexpected thing you've ever had? To fix in production.

Sudheer: So one of the memorable challenge, uh, at Elevation was, uh, modern sizing, uh, legacy deployment system. We were dealing with the monolithic app, zero automation, and long. We SI led a complete CICD overhaul using Jenkins and, uh, bluegreen deployments on AWS cloud that reduce deployment time from two hours to under 10 minutes and allow rollback.

In seconds, transforming engineering, productivity and confidence. And at the same time in a Pega, uh, that is, that is my current company where I'm working. A unique challenge involved scaling Kubernetes based microservices platform while ensuring compliance and observability across multiple regions. We implemented.

Centralizing, uh, Prometheus and Grafana dashboards, which gave us real time visibility into production issues, which helped us proactively address anomalies before they become incidents.

Toby: Was there a particular moment or project in your career that inspired you? To write this book.

Sudheer: This book was inspired by real conversation, basically, uh, uh, with the, with the junior engineers, our SREs across, across, uh, uh, across the, uh, different, different organization where I worked till now.

Yeah. And also I used to do mentoring, uh, uh, uh, apart from my work life. So there I had a, uh, real conversation with the junior engineers and SREs. Many of them understood that what of what of DevOps, but struggle with a question called why and how. Nobody answered why and how they know what is DevOps, right?

Yeah. But the real question can't address like why and how. So I started getting an idea. I. Saying that I wanted to create a practical guide, not a theory heavy textbook. Okay. That walks reader through real world DevOps patterns, tools and decisions. What sets it apart is a mix of technical depth and lived ex experience.

It's loaded with a war stories. Step-by-step walkthroughs and diagrams showing exactly how tools like Terraform Jenkins and Kubernetes work together in the modern DevOps pipeline.

Toby: What makes the book different from other DevOps books out there?

Sudheer: This book is very unique because. As part of this book, I covered complete technical depth and I added my, my experience.

It's loaded with the war stories, as I said earlier, and it, it's, it added step by step walkthrough. And I explained with the diagrams, which shows how tools like Terraform Jenkins, Kubernetes engaged together in the modern debos pipeline. It is not a, it is not a, uh. Theory, uh, heavy textbook. Uh, Toby. Yeah, it is completely practical guide.

Toby: You go from basics to advanced techniques in the book. So what chapter was the hardest to write and what kept you motivated to finish it?

Sudheer: Writing the book, uh, while managing, uh. Full-time work was not a joke. The biggest challenge was simplifying complex topics like, uh, Kubernetes networking and, uh, GitHubs Without watering them down.

I would often sketch diagrams during my lunch breaks or, uh, uh, or writing between my need, my my, my meetings. One insight was realizing that clarity comes from empathy, thinking about reader's mindset. If you can explain blue green deployments to a junior developer using a restaurant and kitchen analogy, you are in a right path.

Toby: And your book mixes both theory and practice. So was there ever a moment when you were writing it where you thought, okay, this works in theory, but I don't know if it'll work in the real world. And how did you bridge that?

Sudheer: Yeah, basically it is about, uh, misconception. Uh, I, uh, I clarified, uh, how. To resolve the misconception between, uh, DevOps and Kubernetes.

So one of the biggest misconception, uh, uh, is that DevOps equals tools in reality. DevOps is a mindset that combines people, process, and tools. You can't just buy DevOps off the shelf. Another is that Kubernetes will solve all your problems. Kubernetes are powerful and, uh, at the same time, it is a complex as well.

Toby?

Toby: Yeah.

Sudheer: Uh, at the Pega where I worked, uh, in my recent experience, we had to build a robust internal developer platform to abstract. Kubernetes complexities from app teams. That's what, that's what made Kubernetes useful. Not the tech alone, but the ecosystem and enablement.

Toby: And if someone's hearing that word, Kubernetes for the first time, how would you break down what they are and what it is?

Sudheer: So basically it is a, uh, HII simplify the complex concepts even for the beginners. I allow using analogies, for example, I explain containers as a lunchbox. Everything your app needs in one NEAT package, or CICD as a relay raise. Developers write code, pass a button to automation, and it reaches production with the quality gates along the way.

During an internal workshop at Elevation, I used the analogy of CD traffic signals to explain the load balancing, and it clicked instantly with the team. Simple metaphors create powerful mental models

Toby: In your experience. What's the most underrated benefit of using DevOps with cloud platforms that even experienced professionals often overlook?

Sudheer: Yeah. Well, uh, basically I can tell with, uh, with a couple of example, like, uh, a couple of practical examples of using DevOps to make a real business impact. Okay. So my previous company where I worked, uh, that is Elevation where we implemented a full stack observability, our infrastructure automation that to a.

Drop in incident response time, we were able to detect anomalies before customer did. Wow. That improves the trust and retention within our organization. At the same time, in my current company where I'm working, that is a Pega Systems, we adapted or Terraform and CICD pipeline to support multi-region deployments.

This. Cut down environments, producing time from days to minutes, and empower our global teams to run faster experiments without bottlenecks. These aren't just engineering wins. They are a business wins,

Toby: and you have managed to reduce, build and deploy times by 98%, which is a huge number. It's like almost unbelievable.

So. What's the secret behind that? How did you approach streamlining these processes?

Sudheer: Yeah. The, to approach the processes, we need a proper tools within, within our organization to support the uh, uh, tooling perspective. So with respect tools, we use Terraform and Ansible. So Terraform is one of the, one of the.

Great tool of Bibi. Yeah, it's a game changer for the infrastructure provisioning that made a cloud resource reproducible and version control. At the same time, another tool called Ansible Ansible that helped us to manage the fleet configuration declaratively. So by combining these two tools, which helped us to build a bridge gap and reduce our CACD to the 40% drop with respect to incident response time, at the same time, build and deploy time as well.

Toby: And do you see tools like Terraform and Answer. Remaining industry standards or are there new challengers on the horizon?

Sudheer: Yeah. Well, as of now, I noticed that Terraform, Ansible remain the leader in the infrastructure provisioning and configuration management tool. If, for example, I, there is a couple of competitors for Ansible, the competitors were.

Ch and Puppet. Okay? Mm-hmm. So using CHF and Puppet is a little bit complexity, uh, with respect to their, their understanding the tooling and, uh, how people can use in the industry about the configuration, tooling and setup thing, uh, wise as well. But in Ansible is a one agent, uh, uh, basically it is agent less.

There is no agent to be installed in the Ansible. Yes. Just you configure plugin play and you configure and, and you go with your, your configuration management. So with say, with that saying that telephone Ansible as our green as, uh, as ahead, but coming to the, uh, in the future, there are some other tools, uh, I'm excited about.

GI Ops and open tofu that is uh uh, basically Terraform four and integration of AI and DevOps pipeline. These are the things which I'm excited in the future.

Toby: And what shifts in mindset do organizations need to embrace DevOps successfully?

Sudheer: Don't try to learn everything at once. Start with the basics. Pick a C tool, like a GitHub actions or Jenkins, and understand how pipeline works.

Then move into continuation infrastructure as a code and monitoring document. Everything you learn, you just blog about it or contribute to open source or build a portfolio project, right? One of my mentee builds a simple LTO CICD project on GitHub that helped land him a great SRE role in one of the repetitive organization.

Toby: If there's someone trying to break into DevOps or level up their skills, what would be your top piece of advice for them?

Sudheer: Don't rush. Don't rush and start from the basic and pick the tools. Uh, very basic tools like A-C-I-C-D. If it is A-C-I-C-D, go with the Jenkins. And learn about Jenkins, how the CICD pipeline configure, uh, do not think about theoretical, theoretical perspective.

I would highly advise. Try to set up your environment yourself, right? Yeah. You configure yourself. Play around, work around in your, in your in your own workspace. Uh, for example, uh, AWS. Cloud, they provide a free account. You don't need to pay anything. Just start using a free account in the AWS and start launching the EC2 instance.

And from there, play, uh, play with respect tools, which you like to focus. I would highly emphasize do not go with the theory concept in the DevOps. I would highly, highly suggest, please practice, uh, uh, practical related things which help you to prepare your upcoming uh, uh, lesson. Sense in the, in the industry with respect to DevOps.

Toby: Now, if a company isn't using DevOps yet, what's the first conversation they should be having internally to start that journey?

Sudheer: It is a culture. As I said, DevOps is not a tool, it's a culture. If you wanted to adapt a culture within your organization with respect to process, with respect the mentality, how your, uh, build and, uh, release works.

So these all the things if you need as a culture, I would highly encourage your organization to start adapt.

Toby: How do you see DevOps evolving in the next five years or so, especially with the rise of AI and serverless computing?

Sudheer: Yeah, that's a very hard topic nowadays to be, believe me. Yeah. Yeah. So yeah, he is going to automate a lot of.

To things like anoma detection, root cause analysis, even creating runbooks. I have already seen tools that suggest optimization for terraform, that plants are detect pipeline inefficiencies in real time. Another thing, serverless. We'll push DevOps toward platform engineering, creating path roads for developers while hiding operational complexity.

DevOps will evolve into a role that builds and governs into these platforms.

Toby: When you were writing the book, did you have to. Go back and change things at any point because the technology had developed.

Sudheer: Yeah, exactly. I think always, uh, uh, technologies, uh, uh, new, new things are coming into technology and we ought to adapt, uh, new things In the book I came across while I'm writing, uh, my book.

And, uh, in, in my, my book, I specified a couple of, uh, bullet points saying that, uh, AI is coming and I have a follow up books to write on the, on the particular AI matter as well.

Toby: Is there gonna be a follow up book from you or any other projects? That we can expect from you in the near future, even if they're completely different.

Sudheer: There are follow up. Things are coming from my end and I begun out outline outlining a technical book series starting with AI powered DevOps in practice. Uh, the goal is to show how AI can be thorough, uh, uh, thoughtfully integrated into DevOps pipelines. From intelligent deployment decisions and anomaly detection to automated incident response, basically the book will be hands-on rooted in real world case studies and design patterns that have scaled in production.

For example, I plan to cover how to integrate ml uh, machine learning based telemetry systems. Into your observability stack or how to use AI to forecast infrastructure needs.

Toby: Well, in the meantime, this book that you've got out just now is called Mastering DevOps with Kubernetes and Cloud, A Practical Guide.

So where are, are all the places that we're able to find that book?

Sudheer: Yeah, it's, uh, available in, uh, Amazon and I published, uh, in Amazon Kindle. And it's available as a Kindle, uh, version, uh, or it available in the paperback.

Toby: Excellent. Well, many thanks for joining us today. It's been great to have you on the show.

Sudheer: Thank you. Same to you as well, Toby. Thank you for your time. Appreciate you.